cured thermoset resins which are subsequently cured by the application of heat. Similarly, reinforcing roving and fabric materials may be pre-impregnated with thermoplastic resins or intermingled with thermoplastic fibers which are subsequently fused together through the application of heat and pressure.

It is further within the scope of the invention to bond to the faces of the reinforced foam cores rigid skin sheet materials such as steel, aluminum, plywood or fiberglass reinforced plastic. This may be achieved by impregnating the core reinforcements with a curable or hardenable resin and applying pressure to the rigid skins while the resin cures, or by impregnating and curing the core reinforcement structure prior to bonding rigid skins to the core with adhesives.

While the forms of the reinforced foam cores herein described and their method of construction constitute preferred embodiments of the invention, it is to be understood that the invention is not limited to these precise forms and method steps and that changes may be made therein without departing from the scope and spirit of the invention.

What is claimed is:

1. A fiber reinforced core adapted for infusion with a hardenable resin and having opposite core surfaces adapted to be attached to corresponding skins, said core comprising a plurality of elongated strips of plastics foam material, adjacent said strips having opposing faces within an interior of said core between said opposite core surfaces, webs of porous and fibrous material separating said opposing faces of said adjacent foam strips and extending between said opposite core surfaces, portions of said webs being exposed at said opposite core surfaces, a plurality of rows of reinforcing struts extending between said opposite core surfaces at an acute angle relative to said webs and extending through said webs, and said struts comprising porous and fibrous rovings enclosed by said foam strips.

2. A core as defined in claim 1 and including skins of porous and fibrous material adjacent said opposite core surfaces, and said rovings extend through said skins.

3. A core as defined in claim 1 wherein said webs are generally parallel and said rows of struts are generally parallel, and said rows of struts extend at generally right angles to said webs.

4. A core as defined in claim 1 wherein each of said webs is disposed at an acute angle relative to said core surfaces.

5. A core as defined in claim 1 wherein said webs are integrally connected and form a continuous corrugated pattern in cross-section through said strips.

6. A core as defined in claim 1 wherein said webs comprise portions of helically wound porous and fibrous rovings surrounding said foam strips.

7. A core as defined in claim 6 and including generally parallel continuous porous and fibrous rovings extending longitudinally along said strips adjacent said helically wound rovings.

8. A core as defined in claim 1 wherein each of said strips of foam material has a triangular cross-sectional configuration.

9. A core as defined in claim 1 and including skins adjacent said opposite core surfaces, and each of said skins comprises continuous porous and fibrous rovings extending across said webs.

10. A core as defined in claim 1 and including resin distribution grooves extending internally within said foam strips and spaced from said core surfaces adjacent said webs, and a resin feeder channel within said strips and connecting said grooves.

11. A core as defined in claim 10 and including at least one skin having inner and outer layers of porous and fibrous material, and a resin barrier film of adhesive material between said layers.

12. A core as defined in claim 1 wherein said foam strips comprise translucent foam material.

13. A core as defined in claim 1 and including at least one internal sheet of porous and fibrous material extending within said core generally parallel to said opposite core surfaces, and said struts extend thorough said sheet.

14. A fiber reinforced core adapted for infusion with a hardenable resin and having opposite core surfaces adapted to be attached to corresponding skins, said core comprising a plurality of elongated strips of low density closed cell material, a first layer of helically wound porous and fibrous rovings surrounding

each of said strips, and said strips and said surrounding rovings are connected together to form said core.

15. A core as defined in claim 14 and including a second layer of helically wound porous and fibrous rovings surrounding said first layer on each said strip, and said rovings in said second layer are helically wound in an opposite direction and cross said rovings in said first layer.

16. A core as defined in claim 14 and including generally parallel continuous porous and fibrous rovings extending longitudinally along each of said strips adjacent said first layer of helically wound rovings.

17. A core as defined in claim 14 wherein each of said strips of foam material has a triangular cross-sectional configuration.

18. A core as defined in claim 14 and including a plurality of rows of reinforcing struts extending between said opposite core surfaces, and said struts comprise porous and fibrous rovings enclosed by said strips.

19. A core as defined in claim 14 and including internal resin distribution grooves extending within said strips and spaced inwardly from said opposite surfaces of said core, and a resin feeder channel within said strips and connecting said grooves.

20 A core as defined in claim 14 wherein said strips comprise translucent foam material.

21. A core as defined in claim 14 wherein each of said foam strips includes longitudinally spaced and laterally extending webs of porous and fibrous material within said core between said opposite core surfaces and contacting said rovings.

22. A fiber reinforced core adapted for infusion with a hardenable resin and having opposite core surfaces adapted to be attached to corresponding skins, said core comprising plastics foam material forming said core surfaces, a plurality of rows of reinforcing struts extending between said opposite core surfaces, each of said struts comprising porous and fibrous rovings enclosed by said foam material, and said struts having cut and flared end portions overlying at least one of said core surfaces.

23 A core as defined in claim 22 and including skins of porous and fibrous material adjacent said opposite core surfaces, and said end portions of said rovings extend through said skins.

24. A core as defined in claim 22 wherein said rows of struts extend at acute angles relative to said core surfaces.

25. A core as defined in claim 22 wherein adjacent said rows of struts cross within said core.

26. A core as defined in claim 22 and including grooves within said foam material along said opposite core surfaces, and rovings extending within said grooves and receiving said flared end portions of said struts.

27. A fiber reinforced core adapted for infusion with a hardenable resin and having opposite core surfaces adapted to be attached to corresponding skins, said core comprising plastics foam material forming said core surfaces, a plurality of rows of reinforcing struts extending between said opposite core surfaces at an acute angle relative to said surfaces with adjacent rows of struts crossing, and said struts comprising continuous porous and fibrous rovings forming continuous chain stitches along said opposite core surfaces.

28. A core as defined in claim 27 and including skins of porous and fibrous material adjacent said opposite core surfaces, and said rovings extend through said skins.

29. A core as defined in claim 27 and including generally parallel and continuous porous and fibrous rovings extending along at least one of said core surfaces.

30. A method of making a composite panel structure comprising the steps of forming a core with a plurality of strips of plastics foam material with adjacent strips having opposing faces and with the strips having opposite core surfaces, locating webs of porous and fibrous material between the opposing faces of the strips with portions of the webs being exposed at the opposite core surfaces, forming resin distribution grooves within the foam strips adjacent the webs with each groove extending generally parallel to a core surface and spaced from the core surfaces within the core, forming a resin feeder channel within the foam strips and connecting the grooves, forming skins of porous and fibrous material on the opposite core surfaces, infusing substantially all of the skins by flowing a hardenable adhesive resin with differential pressure through the feeder channel to the grooves and then through the webs outwardly into the skins, and hardening the resin to form the composite panel structure with integral tie webs connecting the skins.

31. A method as defined in claim 30 and including the step of stitching bundles of porous and fibrous rovings through the strips and the webs at an acute angle relative to the webs.

32. A method of making a fiber reinforced core adapted for infusion with a hardenable resin and having opposite core surfaces adapted to be attached to corresponding skins, the method comprising the steps of forming a plurality of elongated strips of low density closed cell material, helically winding a first layer

of continuous porous and fibrous rovings around each of the strips, and connecting the strips and helically wound rovings together to form the core.

33. A method as defined in claim 32 and including the step of helically winding a second layer of porous and fibrous rovings around the first layer on each strip with the rovings in the second layer wound in an opposite direction and crossing the rovings in the first layer.

34. A method as defined in claim 32 and including the step of directing generally parallel and continuous porous and fibrous rovings longitudinally along each of the strips adjacent the first layer of helically wound rovings.

35. A method as defined in claim 32 wherein each of the strips of foam material is formed with a triangular cross-sectional configuration.

36. A method as defined in claim 32 and including the steps of stitching a plurality of rows of bundles of porous and fibrous rovings between the opposite core surfaces for forming reinforcing struts within the core.

37. A method as defined in claim 32 and including the steps of forming resin distribution grooves internally within the strips and spaced inwardly from the opposite surfaces of the core, and forming a resin feeder channel within the strips and connecting the grooves.

38. A method as defined in claim 32 wherein strips are formed of a translucent foam material.